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MEMORANDUM

TO: Docket Control Center

FROM: Ernest G. Johnson  
*for* Director  
Utilities Division

DATE: October 18, 2007

RE: IN THE MATTER OF THE INQUIRY INTO THE OPERATIONAL PRACTICES  
OF LITCHFIELD PARK SERVICE COMPANY (DOCKET NO. SW-01428A-  
07-0602)

Attached please find Staff's field and office visit findings conducted on July 10, 2007. Staff docketed this Report on October 18, 2007, under Docket No. SW-01428A-06-0444. Staff feels that this report should also be docketed in the above referenced docket.

EGJ:lhbm

Attachment

Arizona Corporation Commission  
**DOCKETED**  
OCT 18 2007

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DOCKET CONTROL

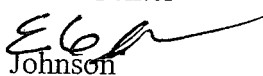
## MEMORANDUM

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AZ CORP COMMISSION  
DOCKET CONTROL

TO: Docket Control Center

FROM: Ernest G. Johnson   
Director  
Utilities Division

DATE: October 18, 2007

RE: LITCHFIELD PARK SERVICE COMPANY – WASTEWATER DIVISION  
FIELD AND OFFICE VISIT ON JULY 10, 2007 (DOCKET NO. SW-01428A-06-0444)

### Introduction

On July 10, 2007, Staff members Marlin Scott, Jr. and Lynn Combs, conducted an unannounced site visit to Litchfield Park Service Company – Wastewater Division (“Company”) for data collection regarding recent wastewater spills and odor issues at the Company’s Palm Valley Water Reclamation Facility (“PVWRF”).

### Data Collection

On this day, Staff had discussions with Matthew Garlick, Algonquin Regional Operations Manager, and Clint Arndt, Company’s Operations Manager. According to these two managers, the following is a chronology of the wastewater spills and fire incident:

#### Spill Nos. 1 & 2

June 20, 2007 – On this evening, a water leak behind Denny’s restaurant was reported but upon the site inspection, sewage was found seeping out of a manhole. This 500 gallon spill was detained within the curb/gutters of the paved parking lot. The cause of this sewage overflow was due to; 1) one of the three disc filters at the PVWRF being clogged and 2) failure of the Supervisory Control and Data Acquisition (“SCADA”) alarm system to notify the plant operators of high level flows into the PVWRF. The operators responded and inspected the filter operation, reset the filters and restored plant operations.

June 21, 2007 – Around mid-day, the SCADA system notified the plant operator of high level flows into the PVWRF. This SCADA alarm resulted in the finding of a 25,000 gallon spill from manholes behind the Denny’s (same facility as June 20), Wendy’s and Cracker Barrel restaurants and Palm Valley Hospital. Sewage was also spilled onto Litchfield Road from manholes in the street, estimated at 5,000 gallons to 7,000 gallons. This clean-up spill was assisted by the City of Goodyear (“City”) that recovered an estimated 24,000 gallons of the spill. The cause of the spill was due to grease and oil build-up in the disc filters at the PVWRF.

### Spill No. 3

June 23, 2007 – On this day, the SCADA system again notified the plant operator of abnormal flows into the PVWRF. This SCADA alarm resulted in the finding of a 500 gallon spill from a manhole again behind the same Denny's restaurant. This spill was again detained with the curb/gutter of the paved parking lot and the Company recovered all 500 gallons of the spill. The cause of this spill was due to a malfunction in the ultra-violet ("UV") equipment controls at the PVWRF.

### Fire Incident

June 24, 2007 – On this day, a fire started at one of the five blowers in the blower room at the PVWRF and was put out by the fire sprinkler system. The fire was caused by the blower belt heating up. The PVWRF was placed off-line for approximately one hour. No spills occurred as a result of the plant shutdown.

### **Company's Responses/Actions**

According to the Company, Spill No. 2 should not have happened. When the SCADA system notified the plant operator, the operator did not respond to the call. Although the disc filters were detected as being clogged, a visit to the PVWRF by the operator to reset the disc filter operation would have prevented this spill. For failure to respond to this call, the plant operator who did not respond to this incident was terminated.

For Spill No. 3, the UV equipment malfunction may have been caused by sabotage. The Company is currently investigating this incident. During this investigation, the Company also found that the coding in the SCADA dialing system had the number "9" (dial-out number) removed from the call-out number. As a result, the call-out was not reaching the plant operators' call numbers. The SCADA alarm system is currently being analyzed.

Due to the above possible sabotage and another incident (a person who appeared to be ready to climb the plant fence was seen and then fled), the Company has filed two police reports. The Company has also hired security personnel to patrol and check IDs before allowing visitors to enter the PVWRF property.

With the firing of one plant operator, the Company has also hired three new plant operators. Plant operators are now on-site at the PVWRF 24/7.

### **Commission Staff Notification**

As a result of the June 2007 spills, Staff and the Company have implemented a reporting protocol for reporting accidents above and beyond what is required by Commission rules. According to the protocol, any future accidents will be reported by email and telephone calls to the Commission Consumer Service Section.

As for the fire incident on June 24th, Staff was properly notified of the fire incident as required by Commission rule. This Commission rule requires companies to report an incident if a serious injury is involved or if damage to company equipment above \$5,000 is sustained.

### **Equipment for Spills**

According to the Company, the Company has no vacuum truck to clean up the spills. If spills do occur, the Company barricades and chlorinates the spill site and contacts a sewer cleaning specialist for clean-up, mainly using a vacuum truck. These specialists can respond to a site in the Company's CC&N within 30 minutes.

In addition to the above, the City also has a vacuum truck that assists in emergency responses, if needed.

### **Violation of Commission Rules and Orders**

Staff reviewed Commission rules and prior Commission decisions and did not find that the incidences or LPSCO's subsequent action violated any Commission rule or decisions. In addition, Staff is not aware of any violation of ADEQ or MCESD rules.

### **Plant Capacity**

The current PVWRF plant capacity is 4.1 million gallons per day ("MGD"). For 2007, the highest average monthly flow of 3.6 MGD occurred in July and the highest peak day flow of 4.8 MGD also occurred in July. In November 2006, a peak day flow of 4.55 MGD was measured. Due to this November peak flow, the Company contracted with McBride Engineering that same month to evaluate the PVWRF plant capacity for alternatives to increase the capacity. The alternatives included; 1) increasing the existing PVWRF plant capacity by 1.0 million gallons, 2) constructing a new 2.0 MGD plant three miles west of PVWRF, and 3) possible interconnection with the City of Goodyear. Another consultant, Water Works Engineering, was hired in March 2007 to evaluate the permitting, land acquisition, and conceptual design of a new plant site.

Based on the July 2007 flows, an average daily flow of 226 gallons per day ("GPD") per service lateral and peak day flow of 300 GPD per service lateral is calculated. Using these calculated flows, the 4.1 MGD PVWRF could serve approximately 18,140 service laterals and 13,670 service laterals, respectively. As of July 2007, the Company had 16,080 service laterals. Although it appears that the plant capacity has insufficient capacity for peak day flows, the Company's Hydraulic Analysis section below indicates the 4.1 MGD plant capacity is capable of handling a peak hourly flow of approximately 6.48 MGD. Based on this analysis, the operating conditions for the 4.1 MGD PVWRF are sufficient at this time along with the Company's current evaluation of additional plant capacity.

## Odor Controls

McBride Engineering was also contracted to evaluate the odor issues and recommended that an Ionstein Ion Exchange System ("Ionstein") be installed which will reduce the load on the existing scrubbers. This odor control system is expected to be installed on September 26, 2007 and will be operating as a pilot test from October 1 to October 7. If the pilot test results are positive, the below Project 5 - Additional chemical scrubbing capacity, would likely be eliminated.

In a Company response letter, dated June 12, 2007, to Commissioner Mayes' letter, dated May 29, 2007, the Company provided an anticipated project schedule to address the odor control issues. In addition, Staff attended the Company's Community Liaison Committee ("CLC") meeting on September 6, 2007, that provided the below updated project schedule by McBride Engineering:

<u>Projects</u>	<u>Anticipated Schedule (6-12-07)</u>	<u>Updated Schedule (9-6-07)</u>
1. Granular activated carbon scrubber addition (Phase 1)	Implemented	Implemented
2. Influent odor control measures	Implemented	Implemented
3. Temporary centrifuge installation	August 2007	Implemented
4. Permanent centrifuge installation	December 2007	December 2007
5. Additional chemical scrubbing capacity (Phase 2)	December 2007	December 2007
6. Aeration blower capacity enhancement	Implemented	Implemented
7. Solids building temporary A/C units	June 2007	October 2007
8. Full-scale ion exchange system pilot	July 2007	September 2007
9. Solids building permanent A/C units	August 2007	(Included w/ #7)
10. Removal of sludge digestion process	December 2007	December 2007

Although the Company's schedule indicates some of the projects have not met the anticipated schedule dates, the Company is still on schedule in resolving the complete odor control issues by December 2007.

As an additional note, during the Company's CLC meeting, the Camelot Homes commercial customer who was in the audience, stated that he has not smelled any odors from the PVWRF for about a month.

### **Hydraulic Analysis**

As a result of these recent spills, the Company retained Narasimhan Consulting Services in early July 2007 to evaluate the hydraulics of the PVWRF and the collection system. This study analyzed the operating conditions of the Company's flow capabilities and concluded that the PVWRF hydraulic capacity is fully capable of handling a peak hourly flow of approximately 4,500 GPM or 6.48 MGD.

### **ADEQ and MCESD Compliance**

On August 7, 2007, Staff emailed the Arizona Department of Environmental Quality ("ADEQ") and Maricopa County Environmental Services Department ("MCESD") to inquire about the compliance status of the Company. These agencies indicated that the Company is currently in compliance with their regulations from the status reports received on August 8, 2007.

In addition to MCESD's response on August 8, 2007, MCESD provided additional information as discussed below. According to MCESD, the Company has submitted a project involving a series of upgrades to the PVWRF. This new project is being done in a number of phases and breaks down as follows:

- Phase 1: Odor Control Upgrades (Pilot Testing)
- Phase 2: UV Disinfection System Upgrades
- Phase 3: Temporary Centrifuge System Upgrades
- Phase 4: Influent Screening Upgrades
- Phase 5: Tertiary Treatment Pump Stations Upgrades
- Phase 6: Solids Handling Upgrades
- Phase 7: Conversion of Digesters to Sequencing Batch Reactors
- Phase 8: Headworks Building Upgrades
- Phase 9: Solids Handling Building Upgrades
- Phase 10: Equalization Basin to Headworks Recycle Line

Construction of Phases 1, 2 and 3 were approved by the MCESD in July 2007 and the work is currently in progress. Phase 10 is currently operating using a temporary line and the construction of the permanent line is under construction. The other phases are scheduled to be submitted in the next 2 - 3 months for review. Most of the work being performed in Phases 1 - 10 is to increase reliability and add redundancy to the plant. It should be noted that the plant's treatment capacity is not being increased by these improvements.

Phase 1 is for pilot testing of a new ionization odor control system that would treat air in the buildings at the plant. It will not replace the wet/dry odor scrubbers that treat air from the process basins and at this point in time is considered to be an experimental system that is being evaluated via pilot testing.

Phase 2 is for a replacement UV Disinfection System since the old system is obsolete. Phase 3 is for a temporary centrifuge system to assist/replace the existing centrifuge system for approximately nine months until a new permanent centrifuge system can be installed under Phase 6.

Phase 10 will allow recycling of the influent water to the filters back to the headworks. This change is being implemented in response to the June 2007 wastewater spill which was caused by grease and oil getting past the sequencing batch reactors ("SBRs") and clogging the disc filters. The plant will now be able to recycle the wastewater from the SBRs back to the headworks which will allow the SBRs to reprocess this off-spec wastewater and hopefully prevent the filters from being clogged if this type of event reoccurs.

Phases 4 - 9 have not yet been submitted to the MCESD so details are preliminary and subject to change. Phase 7 is probably the most significant phase since two existing digesters at the plant will be converted to SBRs. This change will effectively double the number of SBRs at the plant from 2 to 4 which should help to increase operational reliability.

#### **Complaint filings with the City**

Staff has contacted the City to determine if any customers have filed any complaints with City. According to the City, there have been no complaints filed with the City.

#### **Conclusion**

Based on Staff's investigation, an enforcement action is not warranted at this time. Staff determined that there has been no violation of any Commission order or rule committed by the Company. Staff contacted other regulatory agencies to determine if there had been any other regulatory violation. MCESD indicated that the Company was in compliance, as well as ADEQ. Staff's investigation showed that in response to the spills, the Company took appropriate remedial action and has developed a reasonable plan to prevent such reoccurrences. Further, the investigation revealed that the Company has submitted plans to MCESD to upgrade the PVWRF. The Company has previously submitted its plan to address its odor problem. The Company appears to be active in addressing both its capacity and odor issues.

However, the fact remains that there were three spills in the span of three days, and as such, warrants a closer review of the Company and its operational practices. To that end, and pursuant to the authority granted by ARS Section 40-361 (B), Staff recommends the opening of a special docket. The purpose of this docket would be to continue to monitor and gather data concerning the operational practices of the Company and to stay apprised of any operational issues that could threaten public health and safety and/or violate Commission rules or relevant statutes.

EGJ:MSJ:lmh

Attachment: Company's July 19, 2007 Report to ADEQ



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LITCHFIELD PARK SERVICE COMPANY

12725 W. Indian School Rd., Suite D-101, Avondale, Arizona 85323

- - - July 19, 2007

Arizona Department of Environmental Quality  
Water Quality Compliance Division  
1110 West Washington  
Phoenix, Arizona 85007

**Attention: John Gibbons**

RE: Summary of Litchfield Park Service Company - Wastewater Facility Incidents  
June 20, 2007 through - June 24, 2007

This report presents a summary of the operational incidents that occurred during the period of June 20, 2007 through June 24, 2007 at the Palm Valley Water Reclamation Facility (WRF) and the sewer collection system immediately upstream of the WRF. The report is based on information gathered from Operations staff and on a review of plant operating data, regulatory reporting forms, and discussions with plant personnel. In addition, LPSCO retained Narasimhan Consulting Services (NCS) to review the hydraulics for the collection system and the WRF.

Currently, the WRF is a 4.1 MGD facility that utilizes a Sequential Batch Reactor (SBR) configuration. The main unit processes include an influent wet well and pump station, Anoxic Zone Tank, two SBR Tanks, Surge Tank, three Disc Filters, and UV disinfection. Five Kaeser electric blowers are used to supply air into the SBR process, and processing of the sludge is accomplished using digesters and centrifuges. The Plant is located on 14222 W. McDowell Road, 1/4 mile west of the intersection of Litchfield Road and McDowell Road in Goodyear, Arizona. Photos of the facility are included at the end of this report.

The following summarizes the events and causes for the incidents in chronological order:

On June 20, 2007 at 1824 hours, the first high level alarm occurred at the WRF's surge tank, a unit process that feeds the plant's filters. The SCADA system notified the Wastewater Division's on-call employee via cell phone. The operator acknowledged the alarm from the operator's cell phone but did not visit the site to address the issue. As a result, the tank level was maximized and the influent pumps could not deliver wastewater from the sewer to the WRF, thereby backing up the inlet sewer. At approximately 2204 hours, the on-call Water Distribution Operator was informed of a water leak behind Denny's restaurant, located south of McDowell



Road and on the west side of Litchfield Road, which is the lowest point in the collection system. Upon arrival of the first on-call Water Distribution Operator, sewage was found seeping from a manhole. The Water Distribution Operator attempted to notify the Wastewater Operator on-call. After several unsuccessful attempts, the Operations Manager was notified. At approximately 2230 hours, the Operations Manager arrived at the Palm Valley WRF and found that the overflow was due to high water levels at the Palm Valley WRF. The high levels noted were due to one of the three Disk Filters having faulted and going off-line, causing the two remaining filters to plug and influent flow to back up. The filters were reset and the plant was restored. The sewage spill was limited to less than 100 USG and was completely recovered. All of the areas affected were immediately barricaded and chlorinated during and after the overflow event. Operators worked all night to bring tank levels down; however, the operators were not able to decrease the tank levels sufficient to keep ahead of the morning high flows.

On June 21, 2007 at approximately 1100 hours, sewage started overflowing from manholes behind the Cracker Barrel Restaurant (across Litchfield Road from Denny's) and behind Denny's Restaurant. With the City of Goodyear's assistance, we immediately brought in four Vac Trucks, two 4000 gallon Tanker Trucks and seven 6,000 gallon Tanker Trucks. These overflows lasted for approximately 10-20 minutes at 60 minute intervals until approximately 1400 hours. The duration of the spill event was approximately three hours. All of the areas affected were immediately barricaded and chlorinated during and after the overflows, and the event was reported to the regulatory authorities as required. The entire clean up was completed at approximately 2000 hours.

On June 22, 2007 at approximately 2115 hours, the UV units at the Palm Valley WRF faulted out, which shut down effluent flow from the facility and caused the plant to back up. Due to communication problems, the SCADA alarm system did not contact the on-call staff. Upon investigation, it was discovered that the coding in the SCADA system was changed without authorization. This unauthorized change prevented the SCADA system from notifying the on-call employee of a possible incident. The coding has since been corrected by an outside consultant. Also, the need for on-call personnel has been eliminated as we now have 24/7 coverage at the WRF. In addition to the problem with the alarm system, there were minor problems with the XO and Procom telecommunications equipment not communicating with each other which prevented open telephone lines from operating for more than 1 minute at a time.

On June 23, 2007 at 0230 hours, the first Plant Operator arrived on site and found that the UV units had faulted out. The UV units were reset and plant flow was restored. Immediately thereafter, the Operator began to lower plant levels as quickly as possible. However, the morning's high surge arrived at the plant and, at approximately 1300 hours, sewage spilled from the manholes behind the Cracker Barrel Restaurant and behind Denny's Restaurant. This event lasted for approximately five minutes and spilled approximately 500 USG. LPSCO staff immediately barricaded the affected areas and brought in four Vac Trucks, two 4000 Tanker Trucks and four 6000 gallon Tanker Trucks. All of the affected areas were chlorinated during and after the overflow event. The event was also reported to the regulatory authorities as required. The entire clean up was completed at approximately 1600 hours.

The sewage spills that occurred on June 21, 2007 and June 23, 2007 amounted to approximately 25,000 USG. With the assistance of the Tanker and Vac Trucks, approximately 24,000 USG were recovered. The remaining 1,000 USG was lost to percolation and evaporation.

On June 24, 2007 at approximately 1115 hours, the fire alarm system at the Palm Valley WRF was activated. Upon checking the facility, the on duty Operator found the Blower Room completely engulfed in smoke with the sprinkler system activated. The on duty Operator called 911 to confirm that the Fire Department had been notified by the alarm system. Goodyear, Avondale and El Mirage firefighters arrived on scene between 1125 hours and 1130 hours. At 1135 hours, per the Fire Department's request, power to the facility was shut down for safety and fire suppression. The City of Goodyear was notified and assistance was requested to prevent any sewage overflows. Palm Valley WRF Operations staff started calling in Vac Trucks and Tanker Trucks to assist in moving sewage in case it became necessary. The water system pressure was also dropped a few p.s.i. in an attempt to lower influent flows to the Palm Valley WRF. At approximately 1215 hours, the Fire Department determined that the fire was isolated to one blower unit, and allowed the power to be turned on and the plant brought online. The Palm Valley WRF did not have any sewage overflows due to this event.

#### CONCLUSIONS AND SUMMARY OF CORRECTIVE ACTIONS TAKEN BY LPSCO TO PREVENT SPILLS

Based on LPSCO's investigation, the following corrective actions are being taken to ensure continued proper operation of the WRF.

1. All five blowers are operating properly and two new blowers have been installed recently to provide additional redundancy. This ensures operation of the SBR unit and will assist in the prevention of the surge tank and filters from failing.
2. An additional 12" return line from the surge tank to the headworks has been added on a temporary basis and a permanent installation is under design. This will allow cleaning of the surge tank to occur more easily and effectively. It will also decrease the solids load which is passed through the filters.
3. The current UV system was found to be prone to failures during voltage changes within the facility. LPSCO has purchased a new UV system, which is currently on site and being installed. The new system will be less sensitive to power fluctuations.
4. The employee who failed to respond to the first incident has been dismissed.
5. SCADA modifications and communications protocols are in place to improve notifications. New policies are being implemented to notify multiple personnel on alarms and to prevent human failure from causing sewer backups. LPSCO has also implemented 24 hour a day, 7 days of the week operations coverage, along with 24/7 security until such time as surveillance cameras can be installed.
6. LPSCO has ordered "Smart Manhole Covers" to alert operations in the event of rising manhole levels.
7. The sewer system hydraulics were analyzed and operating conditions indicate that the facility is fully capable of handling the peak flows, as discussed below.

## HYDRAULIC ANALYSIS

An independent hydraulic analysis was conducted of the Palm Valley WRF by NCS assuming worst case conditions. A peak hourly flow of approximately 4,500 gpm entering the facility was analyzed. The worst case scenario considered for this analysis is when the Anoxic Reactor is full, the peak starts reaching the plant, and the influent pumps are off. Within approximately 40 minutes, the influent wet wells will hit the high level if no pumping occurs. However, the wet well pumps that pump into the Anoxic Reactor are capable of pumping up to 7,000 gpm (with 2 pumps on). This reduces the levels quickly.

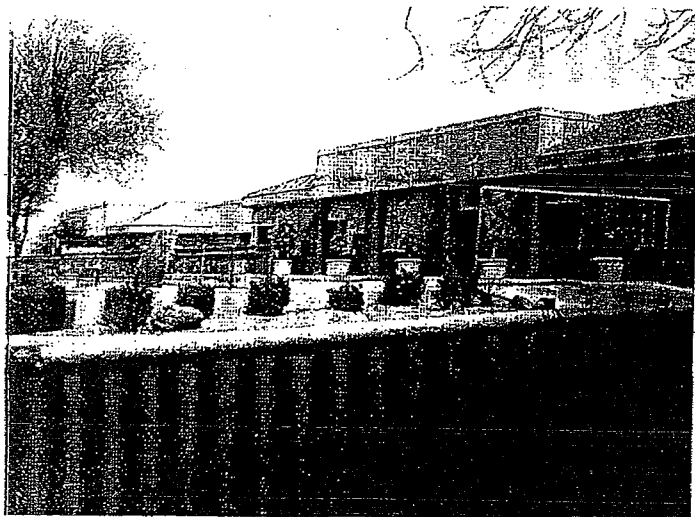
It is assumed that when the peak flow occurs at the plant, the Anoxic Reactor is full but is within its normal operating range. The flow exiting the Anoxic Reactor using two pumps is approximately 10,000 gpm. This flow is higher than the influent pump station flow, so if the SBR tanks have sufficient capacity available, normal operations can be carried out and wastewater can be processed. Under normal operations, at least one SBR tank is available for filling, representing approximately 384,000 gallons of capacity per fill-cycle.

Based on an interview with plant operations, it was determined that the total volume contained in the SBRs can be removed out of the SBRs in approximately 30 to 40 minutes. Therefore, when the equipment operates as designed, operations can be sustained to capture the peak even with a peak hitting the plant when the SBRs begin to drain.

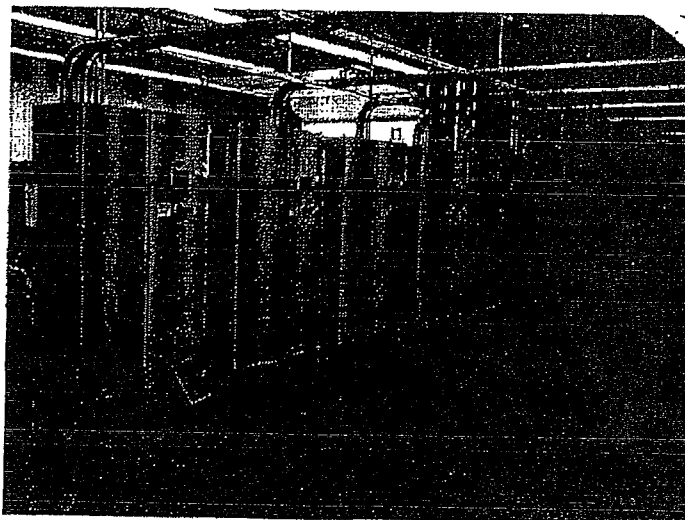
Beyond the Surge Tank, there is a filter pump with a capacity of up to 5,700 GPM with an available redundant pump. The total capacity of those VFD pumps is sufficient to manage the peak flow.

This analysis indicates that the plant is clearly capable of handling the peak hourly flows without surcharging the sewer when all equipment is in proper working order and human error is minimized.

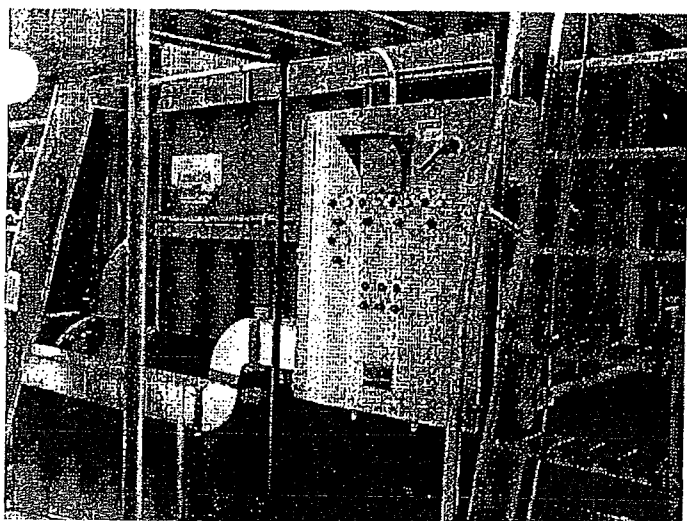
Administration Building



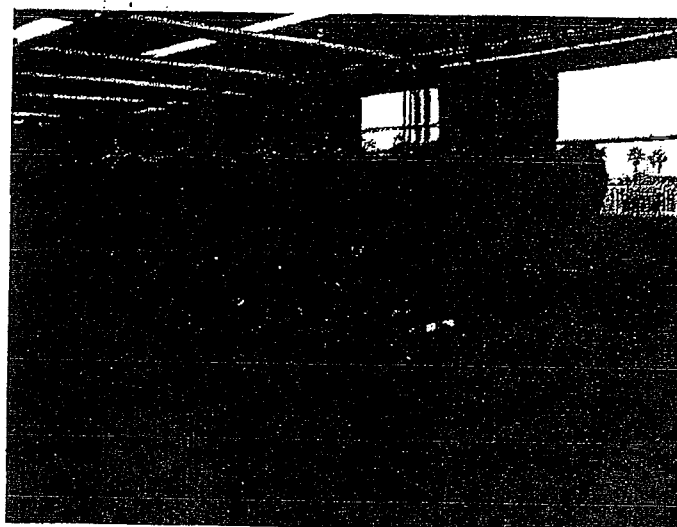
UV Control Room



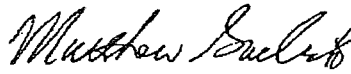
Disk Filter



UV System



Sincerely,  
Litchfield Park Service Company



Matthew Garlick

Cc: Marlin Scott, ACC  
Gary Harmon, ADEQ